

IN THE CLAIMS:

A complete listing of all claims and their status follows.

Claims 1-33 (cancelled)

34. (Previously presented) The method of claim 92, wherein said fluent material is introduced through a tube placed through said seal.

35. (Previously presented) The method of claim 34, wherein said seal is disposed within said opening.

36. (Previously presented) The method of claim 35, wherein said seal is disposed on said tube.

37. (Previously presented) The method of claim 34, further including the step of placing a cannula having a lumen therethrough into said opening and inserting said tube through said lumen.

38. (Previously presented) The method of claim 37, wherein said seal is disposed within said lumen.

39. (Previously presented) The method of claim 38, wherein said cannula is configured to distract two vertebrae on opposite surfaces of said disc upon placement of said cannula into said opening.

40. (Previously presented) The method of claim 92, wherein the step of introducing fluent material comprises introducing the material under pressure.

41. (Canceled)

42. (Previously presented) The method of claim 40, wherein said pressure is substantially maintained until the biomaterial is cured.

43. (Previously presented) The method of claim 40, further comprising the step of providing a vent in communication with said intradiscal space.

44. (Previously presented) The method of claim 43, wherein the biomaterial is introduced into the intradiscal space until the biomaterial seeps from said vent, and further comprising the step of closing said vent upon seepage of biomaterial from the vent to thereby increase the pressure of biomaterial in the disc space.

45. (Previously presented) A method of restoring disc height between two opposing vertebral bodies of the spine, comprising the steps of:

creating an opening through the disc annulus fibrosis in communication with the intradiscal space;

distracting the vertebral bodies apart to increase disc height;

sealably introducing under pressure a curable biomaterial having properties substitutive of nucleus pulposus when cured through said opening contiguously into the intradiscal space until the intradiscal space is substantially filled; and

maintaining said seal and said pressure until the biomaterial is substantially cured *in situ*.

46. (Previously presented) The method of claim 45, further including the step of removing at least a portion of the nucleus pulposus of the disc.

47. (Previously presented) The method of claim 45, further including the step of removing substantially all of the nucleus pulposus of the disc.

48. (Canceled)

49. (Previously presented) The method of claim 45, wherein the step of sealably introducing the biomaterial into the intradiscal space includes placing a seal adjacent said opening and causing fluent material to flow through said seal.

50. (Cancelled)

51. (Previously presented) The method of claim 45, wherein the distraction step is performed prior to the step of introducing the curable biomaterial.

52. (Previously presented) The method of claim 45, wherein the distraction step is performed by a separate distractor.

53. (Previously presented) The method of claim 52, wherein said distractor is a cannulated distractor having a lumen in communication with the intradiscal space.

54. (Previously presented) A device for sealably introducing fluent material directly into the disc space through an opening formed through the annulus fibrosis of said disc, comprising:

a seal for cooperatively engaging the annulus fibrosis adjacent said opening for sealing said opening;

a tube having a passageway for the flow of fluent material therethrough, said tube being configured for cooperative sealed engagement through said seal; and

a vent extending through said seal in sealed engagement therewith and in direct communication with the disc space when said seal engages the annulus fibrosus.

55. (Previously presented) The device of claim 54, wherein said tube is defined by a cannula having an interior lumen extending therethrough.

56. (Previously presented) The device of claim 55, wherein said seal is disposed on the said cannula.

57. (Previously presented) The device of claim 56, wherein said seal is integral with at least a portion of said cannula.

58. (Previously presented) The device of claim 56, wherein said seal is a separate component disposed on said cannula.

59. (Previously presented) The device of claim 58, wherein said seal comprises a plurality of elastomeric rings.

60. (Previously presented) The device of claim 59, wherein said cannula is configured to distract vertebrae adjacent to the disc space.

61. (Previously presented) The device of claim 54, wherein said seal is configured for disposition in said opening.

62. (Previously presented) The device of claim 61, wherein said seal includes a cannula separate from said tube, said cannula having an interior lumen through which said tube extends in use, said exterior of said cannula being configured to securely fit into said disc opening.

63. (Previously presented) The device of claim 62, wherein said seal includes a sealing element disposed in said lumen.

64. (Previously presented) The device of claim 63, wherein said sealing element comprises an elastomeric ring support in said lumen and configured for fluid-tight engagement with said tube.

65. (Previously presented) The device of claim 55 further including a vent extending through said cannula for communicating with said disc space.

66. (Canceled)

67. (Canceled)

68. (Canceled)

69. (Previously presented) The device of claim 55, wherein a distal end of said cannula is defined by an insertion tip configured for facilitating entry into said opening.

70. (Previously presented) The device of claim 69, wherein said insertion tip is separable from said cannula.

71. (Previously presented) The device of claim 70, wherein said seal is disposed on said insertion tip.

72. (Previously presented) The device of claim 69, wherein said insertion tip is configured to engage end plates of opposing vertebrae upon insertion into said opening and to distract said vertebrae.

73. (Canceled)

74. (Canceled)

75. (Canceled)

76. (Canceled)

77. (Canceled)

78. (Canceled)

79. (Canceled)

80. (Previously presented) A kit of parts for sealably introducing fluent material directly into the disc space through an opening extending through the annulus fibrosis of said disc, comprising:

a tube having a passageway for the flow of fluent material therethrough and an extent adapted to be received in the opening of said annulus fibrosis, said tube having a seal adapted to engage said annulus fibrosis adjacent said opening and to form a fluid-tight seal therewith; and

a quantity of curable fluent material adapted to be introduced in a fluid state into said disc space through the passageway of said tube, said material upon curing having properties substitutive of the nucleus pulposus.

81. (Previously presented) The kit of parts according to claim 80, wherein said seal is integral with said tube.

82. (Previously presented) The kit of parts according to claim 80, wherein said seal is a separate component mounted on said tube.

83. (Previously presented) The kit of parts according to claim 80, further including a vent adjacent said tube and adapted to communicate with said disc space.

84. (Previously presented) The kit of parts according to claim 80, wherein said fluent material is a curable biomaterial selected from the group of nucleus pulposus substitutes consisting of hyaluronic acid, fibrin glue, alginates, elastin copolymers and collagen gels.

85. (Previously presented) The kit of parts according to claim 80, wherein said tube extent is defined by the distal tip of said tube, said distal tip being configured to provide distraction of opposed vertebrae communicating with said disc space.

86. (Previously presented) The kit of parts according to claim 85, wherein said distal tip comprises at least one orifice communicating with said passageway to provide an exit path for said fluent material into said disc space.

87. (Previously presented) The kit of parts according to claim 85, wherein said distal tip is removable from said tube.

88. (Previously presented) The kit of parts according to claim 87, wherein there are a plurality of removable distal tips, each being of different size.

89. (Previously presented) The kit of parts according to claim 87, wherein said distal tip is formed of bioresorbable material.

90. (Previously presented) The kit of parts according to claim 80, further including a syringe adapted to inject said fluent material into the passageway of said tube.

91. (Previously presented) The kit of parts of claim 80, wherein said seal is adapted to reside within said opening of said annulus fibrosis.

92. (Previously presented) A method of introducing a fluent material into a disc space to replace disc nucleus pulposus within the disc annulus fibrosis, comprising the steps of:

creating an opening through the annulus fibrosis of a spinal disc in communication with the intradiscal space;

removing at least a portion of nucleus pulposus;

providing a seal at the opening for sealing said opening;

introducing fluent curable material in a liquid form through said seal directly into said intradiscal space in contiguity with said annulus fibrosis or remaining nucleus pulposus, said material having properties that upon curing are substitutive of the nucleus pulposus; and

allowing said fluent material to substantially cure while maintaining said seal.

93. (Previously presented) The kit of parts according to claim 80, further including an injector adapted to be coupled to said tube for injecting said fluent material into said tube under pressure.

94. (Previously presented) The kit of parts according to claim 93, wherein said injector includes a syringe.

95. (Previously presented) The kit of parts according to claim 93, wherein said injector includes a pump.

96. (Previously presented) The kit of parts according to claim 93, wherein said injector includes a mixing chamber.